DETAILED ACTION

Receipt is acknowledged of amendment and remarks filed on 1/29/08.Claims 5-12 and 14-16 have been canceled. Claims 1-4, 13 and 17-19 are pending in the application and the status of the application is as follows:

The following new ground of rejection is necessitated by the amendment.

Claim Rejections - 35 USC § 112

Claims 1-4, 13 and 17-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue". See ***In re Wands, 858 F.2d 731, 737, 8 USPQ 2d 1400, 1404 (Fed. Cir. 1998).*** The court set forth the eight factors to consider when assessing if a disclosure would require undue experimentation. Citing *Ex parte Forman, 230 USPQ 546*, the court recited eight factors

These factors include, but are not limited to:

1*) The breadth of the claims,*

2) The nature of the invention,

3) The state of the prior art,

4) The level of one of ordinary skill,

5) The level of predictability in the art,

6) The amount of direction provided by the inventor,

7) The existence of working examples

8) The quantity of experimentation needed to male or use the invention based on the content of the disclosure.

(1 and 2) The breadth of the claims and the nature of the invention: *The claims are drawn to:*

1. A method for increasing DNA synthesis of dermal papilla cells in hair follicles which comprises applying to the cells a composition containing a follicle-stimulating effective amount of a creatine compound or

13. A method for stimulating hair growth in hair plugs, which comprises applying to the hair plugs, a follicle-stimulating effective amount of a creatine compound.

(3 and 5) The state of the prior art and the level of predictability in the art: *The art is unpredictable with respect to stimulating hair growth.*

(6-7) The amount of direction provided by the inventors and the existence of working examples

Specification under paragraph 21admits that certain concentration is effective in growing dermal papilla cells. See below.

[0021] **Results:** Creatine was found to significantly increase DNA synthesis in papilla cells (see Tables 1&2). At 0.25mM, creatine induced a 36% increase in DNA synthesis. At 0.5mM, creatine induced a 25% increase in DNA synthesis. At 1mM, creatine induced a 6% increase in DNA synthesis. Oxaloacetate was also found to significantly increase DNA synthesis in papilla cells in a dose dependent manner. At 0.25mM, Oxaloacetate induced a 22% increase in DNA synthesis. At 0.5mM, Oxaloacetate induced a 33% increase in DNA synthesis. At 1mM, Oxaloacetate induced a 38% increase in DNA synthesis. Positive results have also been observed with equivalent concentrations of AMP(1493% increase at .25 mM, 1930% at 0.5 mM, 1449% at 1 mM) and ATP(1411% increase at .25 mM, 1201% at .5 mM).

See below with respect to example 2.

[0023] **Example 2**. This example illustrates the increase in hair growth observed in hair plugs exposed to creatine.

[0024] **Methods:** Hair plugs were obtained from East Wood Medical Hair Transplant Surgery (Garden City, NY). These hair plugs were equilibrated in hair plug media as described in the literature (DMEM, 10% FBS, 1% PS, 25mg insulin, 25 µg fungizone). These hair plugs were measured under the microscope one the first day of arrival and treated with creatine at 1mM (n=6 for control and creatine group respectively). These hair plugs were then kept in the incubator at 37°C in 5% CO_2. On day 3, 7, & 10, re-treatments were made as well as measurements.

[0025] **Results:** The hair plugs were found to grow at a constant rate. In the untreated group, there was an average growth of 0.48mm at day 3 compared to day 0. There was an average growth of 0.73mm at day 7, and an average growth of 0.82mm at day 10. Creatine was found to significantly increase the growth rate of these hair plugs compared to the untreated plugs. There was an average growth of 0.95mm at day 3, 1.32mm at day 7, and 1.43mm at day 10 (Refer to Table 3, 4, and 5). These increases were all statistically significant.

[0026] **Discussion:** Creatine was found to significantly increase hair growth in hair plugs. This increase was nearly two fold compared to the untreated plugs. We previously observed creatine increasing DNA synthesis in dermal papilla cells. As dermal papilla cells influence and modulate the growth of hair, we postulate that creatine may be increasing hair plug growth by increasing the activity of dermal papilla cells.

Thus specification teaches that dermal papilla cell influence the hair growth. Test results showed that creatine induced 36% increase in DNA synthesis at 0.25 mM concentration. When the concentration was doubled there is 25% increase in DNA synthesis, and when the concentration was at 1 mM creatine induced 6% increase in synthesis. Therefore as the concentration of creatine increases the DNA synthesis value decreases. Claim 1 doe snot recite any concentration. This value can be any molar concentration. The concentration can be any value greater than 1. If the concentration is 2 mM there might not be increase in DNA synthesis. Test showed only values for creatine. Creatine compound can be any derivative creatine. There is no structural similarity between creatine and cyclocreatine. The compound tested with respect to hair growth was in vitro and the results are with respect to creatine and not its metabolite creatine phosphate or cyclocreatine.

Regarding stimulating hair growth in hair plugs, test results at paragraph 24 used creatine at 1 mM concentration. At this concentration DNA synthesis was only 6%. *What is the reason for using this concentration, when the DNA synthesis is less compared to 0.25 mM concentration*? There is no correlation between the test results for DNA synthesis and stimulating hair growth in hair plugs. Stimulating hair growth was done using creatine and not any creatine compound.

(8) The quantity of experimentation needed to make or use the invention based on the content of the disclosure: the art is unpredictable with respect to hair growth. There is no correlation between the test results for DNA synthesis and stimulating hair growth in hair plugs. The instant specification gives one skilled in the art no indication that the one could use any amount of creatine or any amount of creatine phosphate or any amount of cyclocreatine and

increase DNA synthesis and stimulate hair growth in hair plugs and have a reasonable expectation of success. The instant specification gives one skilled in the art no indication that the one could use any amount of creatine or any amount of creatine phosphate or any amount of cyclocreatine and stimulate the hair growth or increase DNA synthesis. Therefore further testing would be necessary to use the claimed invention and the practice of the full scope of the invention would require undue experimentation.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTHSNA A. VENKAT whose telephone number is 571-272-0607. The examiner can normally be reached on Monday-Friday, 10:30-7:30:1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL WOODWARD can be reached on 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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